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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,709	08/05/2003	Soo-Geun Lee	259/021	6770

7590 05/28/2004

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EXAMINER

PHAM, LONG

ART UNIT PAPER NUMBER

2814

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

9m

**Office Action Summary**

Application No.

10/633,709

Applicant(s)

LEE ET AL.

Examiner

Long Pham

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 15-26 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 is/are allowed.
- 6) ☒ Claim(s) 27-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08/05/03 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/22/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of claims 1-14 and 27-33 in Paper No. 03/12/04 is acknowledged.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (KR P2001-59316A) in combination with Ishimaru (US 20020037643).

With respect to claim 27, Lee et al. teaches an image sensor device, comprising:

a photodiode in a substrate 1;

an interlayer dielectric structure and light passageway which passes through the interlayer dielectric structure, the light passageway being positioned in alignment with the photodiode;

a transparent dielectric layer 16 which fills the light passageway;

a color filter 10 positioned over a light inlet of the light passageway; and

a lens 12 positioned over the color filter in alignment with the light passageway. See fig. 2d and the English abstract.

Lee et al. fail to teach that the interlayer dielectric structure is made of SiN or SiC or opaque material.

Ishimaru teaches an interlayer dielectric structure made of SiN or SiC to suppress diffusion and corrosion of metal. See [0024].

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to form the interlayer dielectric structure of SiN or SiC in the device of Lee et al. to obtain the above advantages. See [0024].

3. Claims 28, 29, 30, 31, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (KR P2001-59316A) in combination with Ishimaru (US 20020037643) as applied to claim 27 above, and further in view of Park et al. (US 20030100181).

With respect to claim 28, Lee et al. do not appear to teach that the transparent dielectric is made of photoresist.

However, it is well-known in the art that photoresist is transparent.

With respect to claim 29, Lee et al. fail to teach that the interlayer dielectric structure has a copper contact.

Park et al. teach an interlayer dielectric structure having a copper contact. See the abstract.

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to include a copper contact in the interlayer dielectric structure of Lee et al. to provide electrical connection to other copper lines. See the abstract.

With respect to claim 30, Lee et al. further teach a first interlayer dielectric layer 5 between the substrate and the interlayer dielectric structure 7,9 to cover the photodiode 3 formed in the substrate. See fig. 2d

With respect to claims 31, 32, and 33, Lee et al. further teach a protection layer or barrier metal layer made of nitride or anti-reflection material. See the English abstract and fig. 2d.

***Allowable Subject Matter***

4. Claims 1-14 are allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on M-F, 7:30AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Long Pham  
Primary Examiner  
Art Unit 2814

LP

Application/Control Number: 10/633,709  
Art Unit: 2814

Page 5